

IN THE CLAIMS

The Examiner has objected to some of the claims on the basis of 37 C.F.R. 1.75 (c) as being in improper form. The claims have been revised to overcome the objections of the Examiner. Further, the Examiner has indicated that Claims 44, 46, 48-53, 60 and 62 are allowable if written in independent form. Applicant has so amended the claims indicated allowable. Claim 49 has been made dependent on Claim 48 and is therefore, in Applicant's respectful submission, also allowable. Therefore, in the claims please make the following amendments:

3. (Amended) The preparation of claim 1 [or 2] wherein the Cmax of Diltiazem in the blood is obtained between about 11 - about 13 hours after administration of the preparation.

9. (Twice Amended) The preparation of claim [1 or] 2 wherein the preparation comprises a plurality of microgranules, wherein each microgranule comprises a central core of the form of diltiazem or a pharmaceutically acceptable salt thereof, associated with a wetting agent, wherein the central core is coated with a microporous membrane.

12. (Twice Amended) The preparation of claim 9[10 or 11] wherein the membrane comprises a water-dispersible or water-soluble polymer and a water-, acid- and base-insoluble polymer of a neutral acrylic polymer which hydrates the preparation.

14. (Twice Amended) The preparation of claim 9[10, 11, 12 or 13] wherein the membrane comprises a neutral copolymer of acrylic acid ethyl ester and acrylic acid methyl ester and hydroxypropylmethylcellulose.

17. (Amended) The preparation of claim 1[2, 3, 4, 5, 6, 7 or 8] wherein the preparation comprises a plurality of microgranules comprising a central core containing the form of diltiazem coated with a microporous membrane and the central core comprises Diltiazem or a pharmaceutically acceptable salt thereof

associated with any suitable dissolution agent (other than a wetting agent) to assist in the release of the Diltiazem from the preparation.

18. (Twice Amended) The preparation of claim 2 [17] wherein the preparation comprises a plurality of microgranules comprising a central core containing the form of diltiazem coated with a microporous membrane and the central core comprises Diltiazem or a pharmaceutically acceptable salt thereof associated with any suitable dissolution agent (other than a wetting agent) to assist in the release of the Diltiazem from the preparation and wherein the dissolution agent is an organic acid selected from the group consisting of adipic acid, ascorbic acid, citric acid, fumaric acid, malic acid, succinic acid, and tartaric acid, which permits the diltiazem to dissolve in gastrointestinal fluids when the microgranules pass into higher pH regions of the gastrointestinal tract of the intestine at which pH diltiazem is much less soluble.

37. (Amended) The preparation of claim [1, 2,] 3[, 4, 7, 8, 9, 11, 12, 13 or 14] wherein the preparation contains 120 mg of Diltiazem.

38. (Amended) The preparation of claim [1, 2,] 3[, 4, 7, 8, 9, 11, 12, 13 or 14] wherein the preparation contains 180 mg of Diltiazem.

39. (Amended) The preparation of claim [1, 2,] 3[, 4, 7, 8, 9, 11, 12, 13, or 14] wherein the preparation contains 240 mg of Diltiazem.

40. (Amended) The preparation of claim [1, 2,] 3[, 4, 7, 8, 9, 11, 12, 13, or 14] wherein the preparation contains 300 mg of Diltiazem.

41. (Amended) The preparation of claim [1, 2,] 3[, 4, 7, 8, 9, 11, 12, 13, or 14] wherein the preparation contains 360 mg of Diltiazem.

42. (Amended) The preparation of claim [1, 2,] 3[, 4, 7, 8, 9, 11, 12, 13, or 14] wherein the preparation contains 420 mg of Diltiazem.

44. (Twice Amended) A controlled-release Galenical preparation of pharmaceutically acceptable Diltiazem including the pharmaceutically acceptable salts thereof, suitable for evening dosing every 24 hours containing from about 120 mg to about 540 mg of the form of Diltiazem with excipients to provide controlled (sustained) release of the form of Diltiazem from the preparation for providing a Cmax of Diltiazem in the blood at between about 10 hours and about 15 hours (Tmax) after administration of the preparation, the preparation being in a sustained-release dosage form in which the Diltiazem is adapted to be control released after administration of the preparation over a period of time and being adapted to release the Diltiazem

(i) into an aqueous medium at the following rates measured using the method of United States Pharmacopoeia No. XXIII at 100 rpm in 900 ml of water:

- (a) between about 1% and about 15% after 2 hours;
- (b) between about 7% and about 35% after 4 hours;
- (c) between about 30% and about 58% after 8 hours;
- (d) between about 55% and about 80% after 14 hours; and
- (e) and in excess of about 75% after 24 hours.

and/or (ii) into a buffered medium having a pH between about 5.5 and about 6.5, at the following rates measured using the method of United States Pharmacopoeia No. XXIII at 100 rpm in 900ml of the buffered medium:

- (a) between about 1% and about 25% after about 2 hours;
- (b) between about 7% and about 45% after about 4 hours;
- (c) between about 30% and about 68% after about 8 hours;
- (d) in excess of about 75% after about 24 hours wherein the preparation comprises a plurality of microgranules, wherein each microgranule comprises a central core of the form of diltiazem or a pharmaceutically acceptable salt thereof, associated with a wetting agent, wherein the central core is coated with a microporous membrane and [The preparation of claim 9, 10, 11, 12, 13, 14, 15 or 16] wherein the wetting agent is selected from the group consisting of:

sugars;

saccharose, mannitol, sorbitol;
lecithins;
C₁₂ to C₂₀ fatty acid esters of saccharose;;
xylose esters or xylites;
polyoxyethylenic glycerides;
esters of fatty acids and polyoxyethylene;
sorbitan fatty acid esters;
polyglycides-glycerides and polyglycides-alcohols esters and
Metal salts.

47. (Amended) A method of treatment of a patient's hypertension and/or angina comprising the administration of the preparation of Diltiazem of claim 3 [45] to the patient in the evening for effective treatment of the patient's hypertension and/or angina the next morning wherein each microgranule comprises a central core of the form of diltiazem or a pharmaceutically acceptable salt thereof, associated with a wetting agent, wherein the central core is coated with a microporous membrane and wherein the wetting agent is in association with the diltiazem in the microgranule and not mixed therewith, the membrane comprises a water-soluble or water dispersible polymer or copolymer and a water-, acid- and base-insoluble polymer which is a neutral copolymer of acrylic acid ethyl ester and acrylic acid methyl ester enabling the bead to be hydrated by the introduction of intestinal fluids into the core hydrating the core and therefore mixing the diltiazem and the wetting agent.

48. (Twice Amended) A controlled-release Galenical preparation of pharmaceutically acceptable Diltiazem including the pharmaceutically acceptable salts thereof, suitable for evening dosing every 24 hours containing from about 120 mg to about 540 mg of the form of Diltiazem with excipients to provide controlled (sustained) release of the form of Diltiazem from the preparation for providing a C_{max} of Diltiazem in the blood at between about 10 hours and about 15 hours (T_{max}) after administration of the preparation, the preparation being in a sustained-release dosage form in which the Diltiazem is adapted to be control

released after administration of the preparation over a period of time and being adapted to release the Diltiazem

(i) into an aqueous medium at the following rates measured using the method of United States Pharmacopoeia No. XXIII at 100 rpm in 900 ml of water:

- _____ (a) between about 1% and about 15% after 2 hours;
- _____ (b) between about 7% and about 35% after 4 hours;
- _____ (c) between about 30% and about 58% after 8 hours;
- _____ (d) between about 55% and about 80% after 14 hours; and
- _____ (e) and in excess of about 75% after 24 hours.

and/or (ii) into a buffered medium having a pH between about 5.5 and about 6.5, at the following rates measured using the method of United States Pharmacopoeia No. XXIII at 100 rpm in 900ml of the buffered medium:

- _____ (a) between about 1% and about 25% after about 2 hours;
- _____ (b) between about 7% and about 45% after about 4 hours;
- _____ (c) between about 30% and about 68% after about 8 hours;
- _____ (d) in excess of about 75% after about 24 hours, wherein the preparation comprises a plurality of microgranules, wherein each microgranule comprises a central core of the form of diltiazem or a pharmaceutically acceptable salt thereof, associated with a wetting agent, wherein the central core is coated with a microporous membrane [The preparation of claim 9, 10, 11, 12, 13, 14, 15, 16, 44 or 45] in which the core and membrane comprise:

| | % W/W |
|---------------------------------------|------------|
| (a) Diltiazem hydrochloride | 69 - 73 |
| (b) Microcrystalline cellulose | 8 - 9.5 |
| (c) Povidone K30 | 1 - 2 |
| (d) Sucrose stearate | 7 - 8 |
| (e) Magnesium stearate NF | 0.5 - 2.5 |
| (f) Talc USP | 0.5 - 5.0 |
| (g) Titanium dioxide (USP) | 0.15 - 0.3 |
| (h) Hydroxypropylmethylcellulose 2910 | 0.3 - 0.6 |

- | | | |
|-----|---|----------------------|
| (i) | Polysorbate 80 (tween) | 0.01 - 0.025 |
| (j) | Simeticone C emulsion USP (dry of 30%) | 0.01 - 0.015 |
| (k) | a neutral copolymer of acrylic acid ethyl ester and acrylic acid methyl ester (dry of 30%) | 7 - 11 |
| | Purified water USP | 0 (used for mixing). |

49. (Amended) A method of treatment of a patient's hypertension and/or angina comprising the administration of the preparation of Diltiazem of claim 48 [46] to the patient in the evening for effective treatment of the patient's hypertension and/or angina the next morning.

50. (Twice Amended) A controlled-release Galenical preparation of pharmaceutically acceptable Diltiazem including the pharmaceutically acceptable salts thereof, suitable for evening dosing every 24 hours containing from about 120 mg to about 540 mg of the form of Diltiazem with excipients to provide controlled (sustained) release of the form of Diltiazem from the preparation for providing a Cmax of Diltiazem in the blood at between about 10 hours and about 15 hours (Tmax) after administration of the preparation, the preparation being in a sustained-release dosage form in which the Diltiazem is adapted to be control released after administration of the preparation over a period of time and being adapted to release the Diltiazem

(i) into an aqueous medium at the following rates measured using the method of United States Pharmacopoeia No. XXIII at 100 rpm in 900 ml of water:

- _____ (a) between about 1% and about 15% after 2 hours;
- _____ (b) between about 7% and about 35% after 4 hours;
- _____ (c) between about 30% and about 58% after 8 hours;
- _____ (d) between about 55% and about 80% after 14 hours; and
- _____ (e) and in excess of about 75% after 24 hours.

and/or (ii) into a buffered medium having a pH between about 5.5 and about 6.5, at the following rates measured using the method of United States Pharmacopoeia No. XXIII at 100 rpm in 900ml of the buffered medium:

(a) between about 1% and about 25% after about 2 hours;
(b) between about 7% and about 45% after about 4 hours;
(c) between about 30% and about 68% after about 8 hours;
(d) in excess of about 75% after about 24 hours, wherein the preparation comprises a plurality of microgranules, wherein each microgranule comprises a central core of the form of diltiazem or a pharmaceutically acceptable salt thereof, associated with a wetting agent, wherein the central core is coated with a microporous membrane [The preparation of claim 9, 10, 11, 12, 13, 14, 15, 16, 44 or 45] in which the core and membrane comprise:

(i) in the core,

(a) between about 50% and about 85% (% w/w of the total preparation) of Diltiazem or pharmaceutically acceptable salt thereof; and

(b) between about 2% and about 25% wetting agent (% w/w of the total preparation);

together with suitable adjuvants; and

(ii) in the membrane,

(c) between about 0.1% and about 2% of the total preparation of water-soluble and/or water-dispersible polymer; and

(d) between about 5% and about 20% (% w/w of the preparation) of a neutral copolymer of acrylic acid ethyl ester and acrylic acid methyl ester, together with suitable adjuvants.

52. (Twice Amended) A controlled-release Galenical preparation of pharmaceutically acceptable Diltiazem including the pharmaceutically acceptable salts thereof, suitable for evening dosing every 24 hours containing from about

120 mg to about 540 mg of the form of Diltiazem with excipients to provide controlled (sustained) release of the form of Diltiazem from the preparation for providing a Cmax of Diltiazem in the blood at between about 10 hours and about 15 hours (Tmax) after administration of the preparation, the preparation being in a sustained-release dosage form in which the Diltiazem is adapted to be control released after administration of the preparation over a period of time and being adapted to release the Diltiazem

(i) into an aqueous medium at the following rates measured using the method of United States Pharmacopoeia No. XXIII at 100 rpm in 900 ml of water:

- _____ (a) between about 1% and about 15% after 2 hours;
- _____ (b) between about 7% and about 35% after 4 hours;
- _____ (c) between about 30% and about 58% after 8 hours;
- _____ (d) between about 55% and about 80% after 14 hours; and
- _____ (e) and in excess of about 75% after 24 hours.

and/or (ii) into a buffered medium having a pH between about 5.5 and about 6.5, at the following rates measured using the method of United States Pharmacopoeia No. XXIII at 100 rpm in 900ml of the buffered medium:

- _____ (a) between about 1% and about 25% after about 2 hours;
- _____ (b) between about 7% and about 45% after about 4 hours;
- _____ (c) between about 30% and about 68% after about 8 hours;
- _____ (d) in excess of about 75% after about 24 hours, wherein the preparation comprises a plurality of microgranules, wherein each microgranule comprises a central core of the form of diltiazem or a pharmaceutically acceptable salt thereof, associated with a wetting agent, wherein the central core is coated with a microporous membrane [The preparation of claim 9, 10, 11, 12, 13, 14, 15, 16, 44 or 45] in which the core and membrane comprise:

- (i) in the core,

(a) between about 69% and about 73% (% w/w of the total preparation) of Diltiazem or pharmaceutically acceptable salt thereof; and

(b) between about 7% and about 8% wetting agent (% w/w of the total preparation);

together with suitable adjuvants; and

(ii) in the membrane,

(c) between about 0.3% and about 0.6% of the total preparation of water-soluble and/or water-dispersible polymer; and

(d) between about 7% and about 11% (% w/w of the preparation) of a neutral copolymer of acrylic acid ethyl ester and acrylic acid methyl ester, together with suitable adjuvants.

60. (Twice Amended) A controlled-release Galenical preparation of pharmaceutically acceptable Diltiazem including the pharmaceutically acceptable salts thereof, suitable for evening dosing every 24 hours containing from about 120 mg to about 540 mg of the form of Diltiazem with excipients to provide controlled (sustained) release of the form of Diltiazem from the preparation for providing a C_{max} of Diltiazem in the blood at between about 10 hours and about 15 hours (T_{max}) after administration of the preparation, the preparation being in a sustained-release dosage form in which the Diltiazem is adapted to be control released after administration of the preparation over a period of time wherein the preparation comprises a plurality of microgranules, each microgranule comprising a central core containing the form of diltiazem coated with a microporous membrane and the central core comprises Diltiazem or pharmaceutically acceptable salt thereof associated with a wetting agent in which the core and membrane comprise:

(i) in the core,

(a) between about 50% and about 85% (% w/w of the total preparation) of Diltiazem or pharmaceutically acceptable salt thereof; and

(b) between about 2% and about 25% wetting agent (% w/w of the total preparation);

together with suitable adjuvants; and

(ii) in the membrane,

(c) between about 0.1% and about 2% of the total preparation of water-soluble and/or water-dispersible polymer; and

(d) between about 5% and about 20% (% w/w of the preparation) of a neutral copolymer of acrylic acid ethyl ester and acrylic acid methyl ester, together with suitable adjuvants [The preparation of claim 56, 57 or 58] wherein the core and membrane comprise:

| | % W/W |
|---|--------------|
| (a) Diltiazem hydrochloride | 69 - 73 |
| (b) Microcrystalline cellulose (Avicel ph101) | 8 - 9.5 |
| (c) Povidone K30 | 1 - 2 |
| (d) Sucrose stearate (crodesta F150) | 7 - 8 |
| (e) Magnesium stearate NF | 0.5 - 2.5 |
| (f) Talc USP | 0.5 - 5.0 |
| (g) Titanium dioxide (USP) | 0.15 - 0.3 |
| (h) Hydroxypropylmethylcellulose 2910 | 0.3 - 0.6 |
| (i) Polysorbate 80 (tween) | 0.01 - 0.025 |
| (j) Simeticone C emulsion USP (dry of 30%) | 0.01 - 0.015 |
| (k) a neutral copolymer of acrylic acid ethyl ester and acrylic acid methyl ester | |

(dry of 30%)

7 - 11

Purified water USP

0 (used for mixing).

62. (Amended) A method of treatment of a patient's hypertension and/or angina comprising the administration of the preparation of Diltiazem of claim 56[, 57, 58, 59, 60 and 61] to the patient in the evening for effective treatment of the patient's hypertension and/or angina the next morning.

Attached hereto as **Exhibit A** is a marked-up version of the changes made to the claims by the present amendment. Exhibit A is entitled "EXHIBIT A - CLAIMS WITH MARKINGS TO SHOW CHANGES".

Attached hereto as **Exhibit B** is a clean set of all pending claims following entry of this amendment. Exhibit B is entitled: "EXHIBIT B - CLEAN SET OF ALL PENDING CLAIMS FOLLOWING ENTRY OF THE PRESENT AMENDMENT". All of the currently pending claims are consolidated in this list for the convenience of the Examiner.

REMARKS

Claims 1-62, as amended, remain in the application. No new subject matter has been added.

The Examiner has indicated that Claims 44, 46, 48 to 53, 60 and 62 would be allowed if written in independent form. This has been done.

The Examiner has rejected the remaining claims on the basis of improper multiple dependency, which objection has been addressed and, in Applicant's respectful submission, overcome, and on the basis of two prior art references, European Patent Application EPO 856313 Geoghegan ('313) and WO 93/00093 Deboeck ('093). The Examiner takes the position that what has been claimed in claims 1-7, 9-25, 27-36 is taught under 35 U.S.C. §102 in the '313 application (anticipation) and that all the claims (except those indicated as being allowable) are obvious under 35 U.S.C. §103 from the teachings of '313 or '093.